

DDI- 06006-85

6 DEC 1985

MEMORANDUM FOR: Director of Information Technology

FROM: Richard J. Kerr
Associate Deputy Director for Intelligence

SUBJECT: DI Workstation

1. The attached, as Helene Boatner promised, lays out our approach to developing the new DI workstation. We have detailed the division of labor in a fashion consistent with what we see as the major missions of the DI and of OIT. We would welcome your comments.

2. We continue to believe that [redacted] is the ideal person to be the project officer on the workstation. I hope you can make him available to us.

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[redacted]

Richard J. Kerr

cc: ExDir
DDA



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Introduction

This paper is being written to propose a strategy for acquiring a "high-end" analyst workstation for the Directorate of Intelligence.

Background

The Directorate of Intelligence has been gradually introducing automation into the production of intelligence over the past twenty years. This culminated in the delivery of a SAFE capability implemented on Delta Data workstations connected to mainframe computers. Advances in technology have created new opportunities for major improvements in analytical productivity through advanced "high-end" workstations. Several evaluations and experiments are currently underway within the directorate with the objective of better understanding the impact of this technology. These efforts have led to a general consensus that there is a potentially significant benefit to be derived from the general availability of these new tools.

The DI must have a plan to examine the alternatives for improving the analytical process through the use of sophisticated workstation hardware and software. It is now appropriate to bring the experimental results together and focus on the delivery of an appropriate architecture and configuration. Fortunately, the developments in the industry have been moving at a rapid pace and have reached the point where there are several reasonable alternative architectures at affordable prices. The nature of the workstation implementation process is such that we must formulate opinions as to the appropriate path for the directorate and begin now to select the appropriate direction. It is imperative that we develop the means for transitioning from the current facilities.

The case for high-end workstations in the DI is, by no means, totally clear. Objective measurements must be undertaken to demonstrate the clear superiority of the more expensive alternatives. At the same time, there are subjective factors which must be accommodated. A great number of DI analysts have been exposed to various technological advances and have formulated opinions as to the appropriate path for the directorate. We have an obligation to establish forums for allowing the whole spectrum of approaches to be examined. DI analysts, who are the ultimate customers of these developments, must have substantial input not just into the requirements process, but into the decision-making process, as well. The availability of AIM conference facilities, which are already being exploited for sharing opinions on this subject, can be used to create the initial dialog. A more formal structure is necessary to put closure to this issue. A series of technical conferences is envisioned with the ultimate consensus decision being arrived at by a representative steering committee.

As part of this analysis, it is appropriate to ask "Why should the DI be responsible for implementing its own high-end workstation?" There are several factors which favor a customer-based implementation. While there is general applicability for this sophisticated capability across the whole agency, the need is most acute in the DI, with its rapidly emerging technology base. The knowledge base which has already been acquired with regard to workstation functionality and DI analytical requirements gives the directorate a substantial lead in solving its own problems. The relative "homogeneity" of

the DI analyst population and the production aspects of the DI enable us to more effectively focus on specific DI requirements, unencumbered by conflicting concerns from other directorates. Moreover, the current national emphasis on intelligence production, and the dramatic increase in the quantity of data available to DI analysts add urgency to the process.

OIT has announced that the IBM PC-AT will replace the Delta Data as the standard workstation. Clearly, an enhanced version of the OIT effort must be considered a strong candidate for the high-end functionality. However, the existence of a wide range of competitive alternatives (including one from IBM) compels further analysis before establishing a direction. The functionality which is anticipated from the OIT effort is not expected to meet anticipated needs which have been demonstrated in each of the DI's workstation experiments. On the other hand, the popularity of the IBM PC, and the attention it has received from software developers, makes the OIT device a viable contender, especially in light of recent developments from the Xerox Corporation and Microsoft, Inc.

Implementation Plan

The responsibility for implementation of this effort will be with the Project Management Group/DI. The first step in developing a DI analyst workstation involves establishing working relationships between various components responsible for all aspects of the development. For purposes of formal requirements and acceptance, the Analytical Support Group is considered the "customer" for the workstation. This group will be responsible for establishing a DI workstation user group, with the substantial involvement of non-technical analysts. Overseeing this process will be the ad hoc DI ADP Steering committee, chaired by the Associate Deputy Director for Intelligence.

The Office of Information Technology must maintain a substantial involvement in this development. The workstation must be an integrated component of the OIT information processing network. Communications interfaces between the workstation and the OIT mainframes must conform to OIT standards. A mechanism for obtaining OIT's architectural concurrence must be established.

The DI is not equipped to install, maintain, and support thousands of workstations. OIT must be enlisted to provide these services. Similarly, documentation and training assistance will be needed from the responsible components of OIT.

The relevant principles of security which will constrain the development of the workstation must be established prior to the selection of an architectural direction. The DI will take direction on this aspect of the development from the OIT/Computer Security Group.

The first substantive task of the implementation effort is the establishment of requirements. Obviously, this process has been ongoing in many different forms, however a more formal process of trading-off costs and conflicting technologies must be undertaken. To facilitate this, the project will establish "straw man" configurations which can be used to characterize more general approaches. A spreadsheet of contrasting attributes can be formulated to provide the evaluators with a clear and objective statement of the merits

and drawbacks of each approach. Mathematical weighting can be applied to the process to clarify the analysis, but the eventual decision must retain a subjective flavor.

The requirements process must, first and foremost, clearly examine the need for a high-end workstation in the DI. The benefits of this technology must be clearly evident, and studies to demonstrate the productivity or analytical gains from expensive alternatives will be staged.

Once the requirements have been identified and consolidated, an architectural approach can be taken. Current candidates include the following:

- o Extension of OIT "News" with large screen and Microsoft Windows
- o Extension of OIT "NEWS" with Xerox "Joshua"
- o IBM "Sailboat"
- o Xerox "Dove" running Smalltalk
- o Tektronix running Smalltalk
- o Xerox 11xx running LISP/Notecards
- o SUN running Unix/Alis
- o Enhanced Apple Macintosh

One major issue involved in developing a new workstation is the accommodation of existing ("legacy") software. The DI is currently strongly committed to software which uses the Delta Data 7260/8260 intelligent workstation. While it is clearly the goal of this plan to provide "off-the-shelf" products, agency specific software must be developed that supports the existing applications (i.e. SAFE). This development may be the long lead item in the implementation of this plan.

Project Management Group/DI

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